

CHAPTER 12

PRODUCT REMOVAL PROCEDURES

12-1. General. This chapter describes the procedures that should be followed for removal of product from an UST after the tank's contents have been characterized by reviewing records and/or by chemical analysis. Sampling is usually recommended for tanks that are no longer in use or that have experienced a change in use over their lifetimes. The only time when a UST would not be sampled is when the tank is currently in service, and the contents stored over its service life are well-documented.

12-2. Operations, Procedures, and Instructions.

a. Precautions. During the course of product removal, workers may be exposed to petroleum hydrocarbon liquids, vapors, or wastes. All precautions should be observed by all individuals using this procedure for product removal from USTs. Site personnel responsible for product removal should be familiar with:

- (1) All safety rules and regulations (consult the SSHP for specific safety instructions).
- (2) The use of equipment and procedures for removing product from tanks.
- (3) The handling and disposal of the types of products likely to be encountered.
- (4) API Publications: 1604, 2003, 2015, 2217, 2219, and NFPA 327.
- (5) Transportation of fuel and fuel products.

b. Documentation.

- (1) Obtain a field logbook to record all activities performed, personnel contacted, time and dates when these activities were performed, field conditions, and any unusual circumstances.
- (2) Keep information factual and objective.
- (3) Enter information not recorded in the logbook on field forms. In either case, record the following information:
 - Site identification
 - Date and time specific activities took place
 - Personnel names
 - Field observations.

Photographs are suggested; if photos are taken, records must indicate the name of photographer, site name, camera type and lens size, and general direction. This information will be included in the Tank Closure Report discussed in Chapter 1 of this manual.

c. Procedures.

- (1) Observe any special precautions.
- (2) Perform limited excavation (per requirements in EM 385-1-1) to access the piping. Flush and drain piping into the tank, being careful to avoid any spillage to the surrounding area. Disconnect piping (except the vent line) from the tank and cap or remove the piping.
- (3) Take a sample for offsite analysis if tank contents are unknown. Generally, the contents of an active tank are known. See Chapter 6 for sampling of tank contents.
- (4) Vent the tank properly by ensuring all vent pipes are open to the atmosphere, then pump or drain residual product to the lowest possible level through the water-draw or pumpout connection.

12-3. Equipment. Vacuum tank trucks, along with explosion-proof or air-driven pumps, provide a fast and efficient method for removing and hauling product from USTs.

a. Precautions

- (1) The vacuum truck operator should be trained to identify or recognize hazards connected with truck operations including spills, hose failures, and discharges of flammable and toxic vapor.
- (2) The truck operator should be provided with and trained in the use of all required personal protective equipment. In addition, the tank operator should be trained in recognition of potentially flammable conditions and fire prevention, first aid, and the proper use of portable fire extinguishers and other fire extinguishing techniques.
- (3) Department of Transportation regulations in 49 CFR 172 Subpart H require the truck operator to be trained and tested on the hazardous materials regulations. Training must include general awareness of the hazardous materials regulations, safety training, driver training, and function specific training. The truck operator should be knowledgeable in and compliant with applicable state and local hazardous material regulations as

well as the following portions of the *Code of Federal Regulations*:

- (a) 49 CFR Parts 170-178 and 390-397 Transportation. (This material has been compiled by National Tank Truck Carriers in their publication: *Cargo Tank Hazardous Material Regulations*.)
 - (b) 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste.
 - (c) 40 CFR 279 Standards Applicable to the Management of Used Oil (when applicable).
- b. Truck Inspection and Operating Procedures. The truck operator should complete this inspection checklist before the truck is operated:
- (1) All valves are operating freely.
 - (2) Floats for liquid-level indicators are working properly.
 - (3) Rubber stoppers on scrubber shutoffs are in good condition and seated properly.
 - (4) Dome gaskets are in good condition and seated tightly when the domes are closed (this can be checked by applying pressure to the tank).
 - (5) Hoses, connections, and fittings are in good condition, and the materials of construction are appropriate for the application.
 - (6) All connections and other equipment are leak-free and in good working order.
- c. Internal Valves. Internal valves are not required on tanks that have been specifically exempted by the U. S. Department of Transportation; however, a copy of the exemption must be carried on the truck.
- d. Operating Environment.
- (1) Because truck engines are an ignition source, they should be operated upwind of any pickup point and outside path of vapor travel.
 - (2) If there is any question whether the area is gas-free, a gas test should be performed using a CGI before any operation is started. The area must be vapor free.

- (3) A vacuum truck should be permitted into a diked tank area only after the area has been tested and found to be gas free.
 - (4) In the area where product will be discharged from the vacuum truck, vapor travel and sources of ignition must be considered.
- e. Static Electricity. With nonconductive hose, any exposed metal, such as a hose flange, can accumulate static electricity and act as an ignition source if the metal touches or comes close to ground. Therefore, if nonconductive hose is used to discharge a flammable liquid into an open area (such as a pit or an open tank) or discharged where any source of flammable material is present near the hose's exposed metal parts, the metal parts shall be bonded, the hose and the tank or receiving vessel shall be bonded, and the bonding system shall be grounded. (Refer to NFPA 30, Flammable and Combustible Liquids Code).

As it is difficult to distinguish between conductive and nonconductive hose and both may be used, it is recommended that all exposed metal on any hose be grounded. Exception to this would be a closed system with tight connections at both ends of the hose. An alternative to grounding in such cases is verifying, by means of electrical testing, that the hose is conductive.

- f. Cargo Tank Vacuum Loading. The truck operator should utilize the following procedure when loading a cargo tank:
- (1) Attach the suction hose from the inlet valve to the load source.
 - (2) Close all valves.
 - (3) Start the vacuum pump.
 - (4) Position the four-way valve to pull a vacuum on the cargo tank.

WARNING: When volatile flammable or toxic liquids are loaded, the vacuum pump exhaust should be extended downwind by attaching a length of hose sufficient to allow venting to a hazard-free area away from people, ignition sources, and so forth.

- (5) When the tank is full, close the inlet valve.
- (6) Bleed off the vacuum by opening the bleeder valve, equalizing the tank pressure.
- (7) Close and cap the bleeder valve. Open the inside and outside scrubber (liquid entry preventer); drain valves. Catch any liquid for proper disposal.

CAUTION: To prevent liquids and solids from entering the vacuum pump, neither the inside nor the outside scrubber drain valves should be opened while the unit is under vacuum.

12-4. Waste Disposal and Recycling. Two types of waste associated with product-removal operations include product and contaminated water from rinsing activities.

a. Product Disposal. (*Note: The scope of this EM is limited to petroleum, oil, and lubricant tanks; therefore, this discussion does not include other types of products*). In many instances, product removed from tanks can be reused onsite if the fuel characteristics meet the facility's specifications. If the fuel does not meet the specifications, (e.g., because of excessive amounts of water or sludge in the fuel), it can be shipped to a recycler for reclamation. Prior to shipment, a determination on the regulatory status of the material must be made. It may be regulated as a hazardous waste if it is ignitable, fails TCLP, or meets criteria for a state-regulated waste. On the other hand, it may be excluded from regulation if it can still be used as a fuel or if recycled in a manner that excludes it from regulation as a hazardous waste.

(1) When the petroleum, oil, lubricant (POL) is not subject to regulation as a hazardous waste, options for recycling include:

- (a) Use for its intended purpose directly. For example it can be burned as a fuel in a boiler, in an industrial furnace, or in a space heater. It could also be burned in an engine used to operate a free-product recovery system.
- (b) Use for its intended purpose after being re-processed. For example, fuel/water mixtures can be physically separated on site to recover the fuel. Since it is not regulated as hazardous waste, processing does not require an RCRA Part B permit.
- (c) Use as an additive for paving or roofing asphalt. Whereas hazardous wastes are prohibited from being used as ingredients for products placed on the land (unless specific conditions are met), this prohibition does not apply to non-hazardous wastes.
- (d) Use as a substitute for a commercial product. For example, it could be used as form release agent for concrete production.

(2) When the POL is ignitable or fails TCLP, the following options for disposal and/or recycling should be considered:

- (a) Use for its intended purpose without first processing. Fuel that can still be used for its intended purpose is not subject to RCRA regardless of whether or not it exhibits a hazardous characteristic.
 - (b) Process it to become a useable fuel. However, the facility that processes the waste must be a permitted RCRA treatment, storage, and disposal (TSD) facility.
 - (c) Mix with used oil and burn as used oil provided the mixture does not exhibit any RCRA hazardous characteristic. Note, however, that this is permissible according to federal regulation, but may be prohibited by individual states.
 - (d) Burn for energy recovery at a permitted TSD facility.
 - (e) Use as an effective substitute for an ingredient in a commercial chemical product provided the resultant product is not applied to the land or burned for energy recovery. However, it can be recycled into a product applied to the land if the following three criteria are met:
 - (1) The recyclable material has undergone a chemical reaction in the course of producing the product so as to become inseparable by physical means;
 - (2) the product meets land disposal restriction treatment standards; and
 - (3) the product is produced for the general public's use.
- b. Contaminated Water. Contaminated water can be disposed of in several different ways. Some DOD facilities may discharge to an oil/water separator. A second method is to discharge it to the local publicly owned treatment works (POTW) or an industrial wastewater treatment facility. Contact the facility environmental coordinator and the local POTW to determine discharge requirements for the facility. Another method of disposal is to ship the water/product mixture to a recycler. The reader should recognize that this may be a more expensive option due to shipping costs. Any method of disposal needs careful and precise documentation, including laboratory analytical results, disposal facility approval and certification, and the proper paperwork to track the removal and disposal of the waste.